

ABSTRACT

A method for reducing the number of programming states (threshold voltage levels) required to be traversed when programming a multistate memory cell with a given set of data. The invention first determines the average programming state (corresponding to an average threshold voltage level) for the set of data which is to be programmed into the memory cells. This is accomplished by counting the number of programming states which must be traversed in programming the cells with the data. If the majority of the data requires programming the memory cell(s) to the upper two programming states (in the case of a two bit per cell or four state system), then the data is inverted and stored in the memory in the inverted form. This reduces the amount of programming time, the number of programming states traversed, and the power consumed in programming the memory cell(s) with the data field.